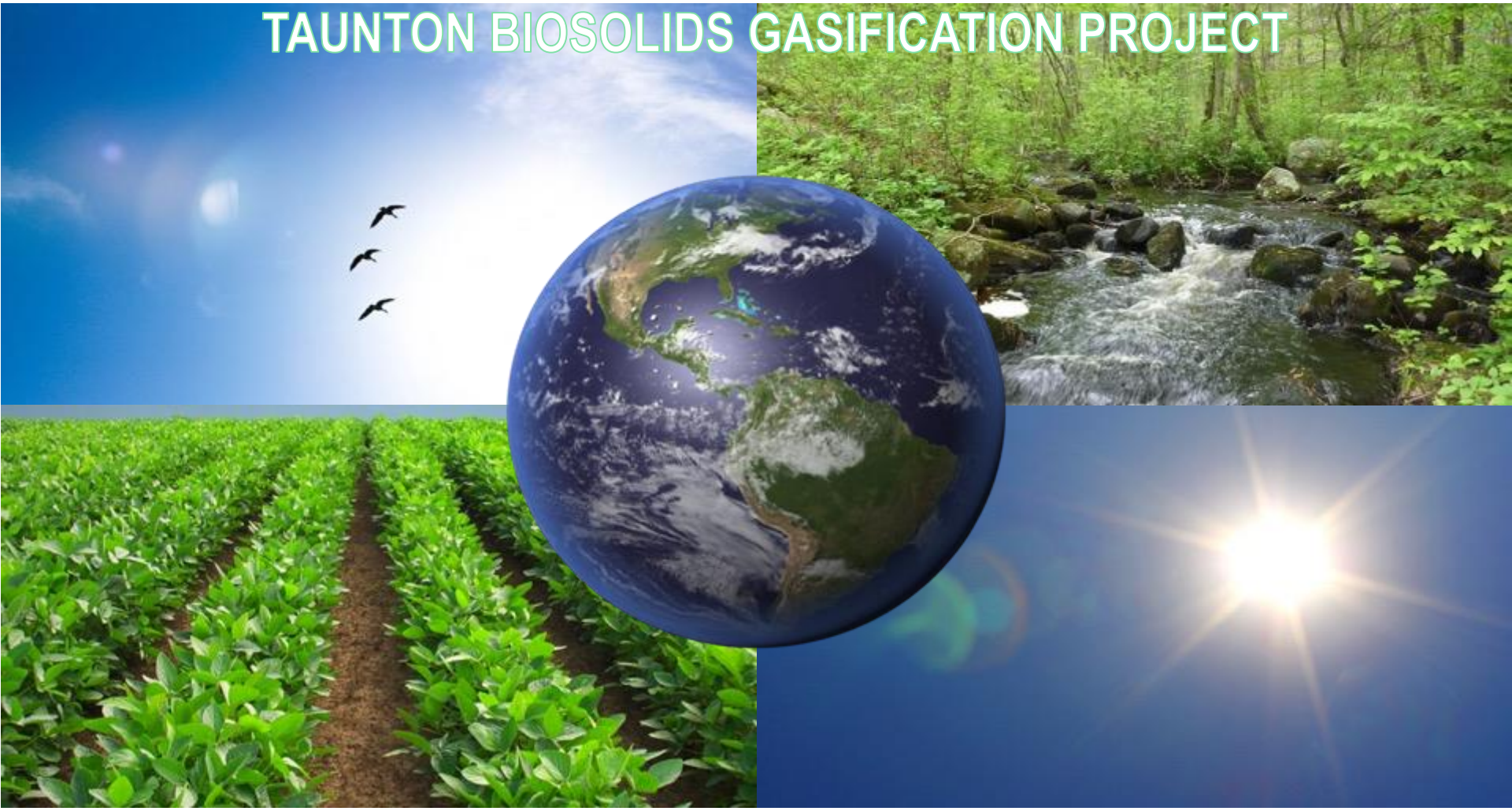
ARIES CLEAN TECHNOLOGIES



Presentation to Taunton City Council
March 16, 2021

Project Environmental Benefits

- Closed loop energy neutral system
- 95% volumetric reduction of biosolids
- Sustainable long-term solution
- Reduces land application and incineration
- No odors from facility

- Sustainable zero landfill solution
- Carbon neutral to negative
- Reduces biosolids hauling, reduces CO2 emissions
- Gasifier air emissions expected to be lower than existing sewage sludge incinerators in Massachusetts

- System produces clean, renewable heat energy from producer gas
- System produces a valuable biochar product that replaces coal fly ash in concrete applications

Major Project Milestones

- Site Option Agreement Signed December 2020
- Host Community Agreement Signed February 2020
- Execute Biosolids Supply Agreement – March/April 2020
- Form of Long-Term Site Lease Agreement TBD
- MEPA Process Underway: 9-12 months
- MassDEP Regulatory Permitting: 6-9 months
- Financial Close – Q2 2022
- Construction – Q2/Q3 2022
- Commercial Operations – Q2/Q3 2023

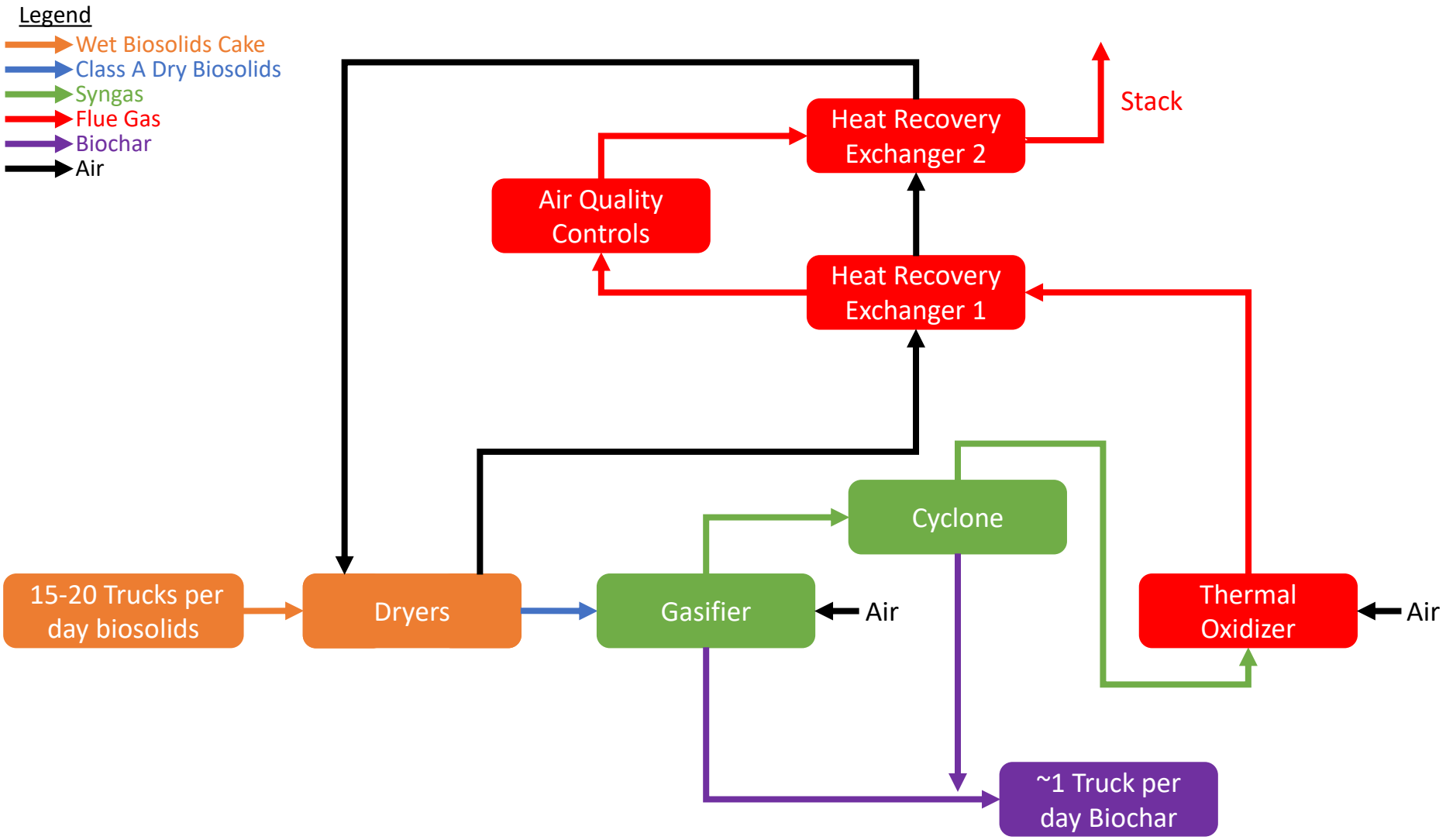
Materials Involved

Biosolids Cake

Class A Dry Biosolids

Biochar

Overall Process - Simplified



Aries Taunton Permitting Underway

- MEPA Process Underway – Currently Preparing Draft Environmental Impact Report (DEIR)
  - Environmental Notification Form filed in December 2020
  - Noise study – measured ambient levels, modeling of project
  - Air modeling including odor, criteria pollutants and air toxics
  - Traffic study
  - Public outreach/public comments on project
  - Final Environmental Impact Report after receipt of public comments on DEIR
- Air, water, solid waste permits obtained after MEPA Process. The air and solid waste permits will have public review processes.
- Local site plan approval/building permits – Site Assignment Modification needs approval from Local Board of Health.

Minimized Impacts

Traffic:

- One turn at the intersection of East Britannia Street and Broadway (Route 138) before trucks can make a straight run to Route 495 via Route 138
- 15-20 trips per day, versus about 50 trips per day currently, and about 250 trips per day when the landfill was active

Air Quality:

- Thermal oxidizer (1800 degrees F) will destroy organics
- Selective catalytic reduction, dry sorbent injection, and ceramic filtration will destroy or remove other contaminants
- Computer air dispersion modeling will document that the facility will not cause or contribute to a condition of unhealthy air

Odor:

- Odorous sources will be kept under negative pressure and vented to the thermal oxidizer for odor destruction
- Biosolids will be transported to the facility in sealed bottom dump trailers

Noise:

- Most equipment indoors, truck hours restrictions
- Low-noise fans, silencers, enclosures
- Computer noise modeling will document that the facility will not cause a nuisance condition

Aries Project – Environmental Protection Features

- State-of-the-art odor control design
  - Totally enclosed biosolids receiving building under negative air pressure
  - Thermal oxidizer will destroy all VOC's/odor compounds with backup carbon filter in the receiving building
  - Biosolids delivery vehicles will be watertight and covered
  - No liquid biosolids will be accepted
- State-of-the-art air quality control systems
- Highly reduced truck traffic vs. landfill (20 trucks/day)
- No land disposal/no environmental impact on existing landfill
- No water quality impacts
- State-of-the-art noise reduction
- Biochar sold into construction market as concrete additive

Aries Project – CLF Letter Rebuttal

- Gasification is not incineration –no biosolids will be combusted.
- Taunton biosolids are currently incinerated 150 miles away in Naugatuck, CT.
- An extensive environmental review and permitting process that will take up to 18 months has only just begun.
- Aries needs control of the site to satisfy MassDEP and to justify the significant expense of permitting/approvals.
- Studies of biosolids pyrolysis and thermal conversion have shown significant destruction of PFAS.
- Thermal oxidation has been approved by NHDES as a method to destroy PFAS in exhaust.
- A study of the gasification of auto shredder residue, which contains high amounts of PFAS, showed no PFAS in biochar.
- An extremely low level of PFAS will be emitted from the stack and shown to be safe via the Air Plan Approval process.

Aries Project – CLF Letter Rebuttal

- Gasification converts biosolids into safe beneficial use products.
- Biosolids contain only trace amounts of organics and metals.
- The gasification process will destroy organics and Aries will demonstrate that the trace amounts of metals in the biochar are safe.
- A state-of-the-art air quality control system will result in a safe air exhaust and will be demonstrated through testing and air modeling.
- The use of the gasification process synthesis gas will replace the use of fossil fuels in the facility; there are no oils or tars in the syngas.
- The use of anaerobic digestion to treat biosolids does not significantly treat or reduce the volume of biosolids.
- Anaerobic digestion does not destroy PFAS.
- Many states are banning the landfilling of organics such as biosolids, no landfills available in Mass.

THANK YOU